Welcome to GSA Fleet's Desktop Workshop

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GSA Fle

Desktop Workshop

Electric Vehicles & Charging Station Offerings

You can download a copy of this presentation at: https://www.gsa.gov/gsa-fleet-training

Presented by: Caitlin Dorame & Stephanie Gresalfi

Summer 2021

Agenda

- Federal Sustainability
- Why EVs
- Electric Vehicle Offerings
- What is EV Suitability
- Tips & Tricks
- EV Infrastructure
- Electrification Planning

Federal Sustainability

Federal Sustainability

EPAct 1992/2005
Buy Alternative Fuel Vehicles

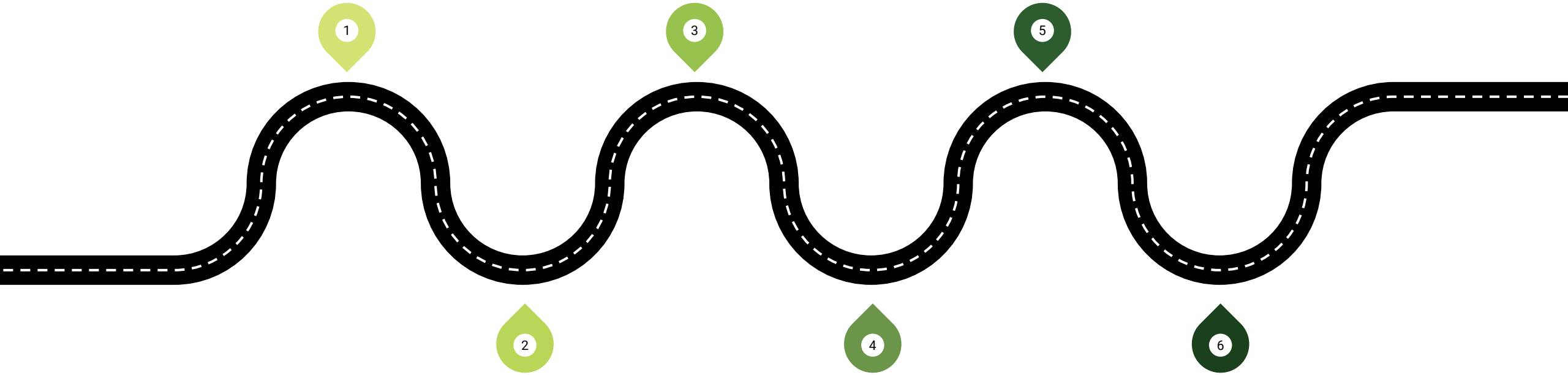
2007: Energy Independence & Security Act (EISA)
Buy all Light Duty as Low Greenhouse Gas Vehicles

2011/2014:
GSA Electric Vehicle Pilots

2015: E.O. 13693
20% of Sedan acquisitions are Zero Emission Vehicles (ZEVs) by 2020; 50% by 2025

2017:
Federal Fleet Card accepted at Public Charging Stations

2021: E.O. 14008
signed; GSA offers over 26 ZEVs & pursuing more!



Federal Fleet Electrification Today

> We're going to turn [the Federal] Fleet into a fleet that's run on electric vehicles
> -President Biden

EO 14008: Tackling the Climate Crisis at Home and Abroad

Sec. 205. Federal Clean Electricity and Vehicle Procurement Strategy.

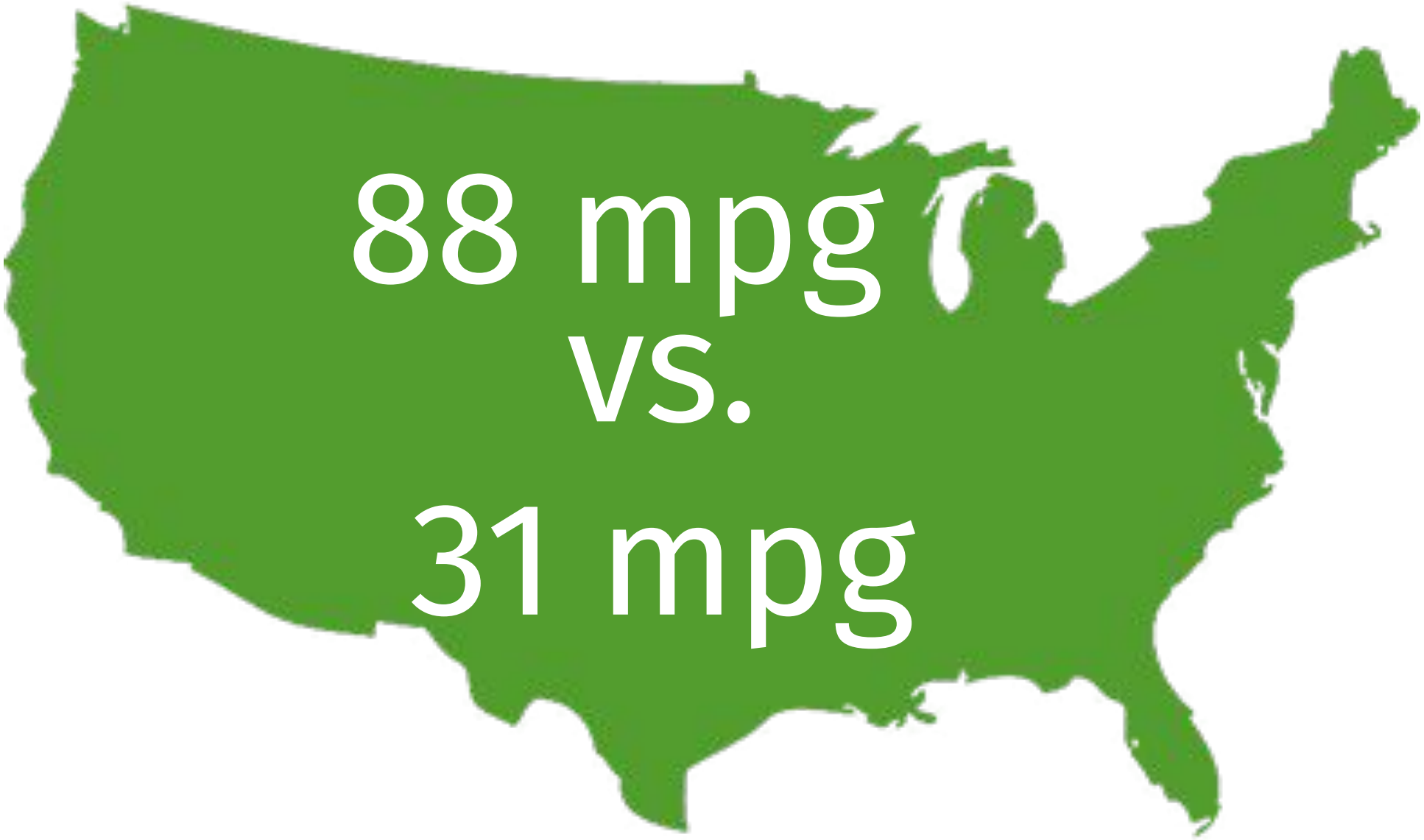
[GSA, CEQ, OMB, shall assist the National Climate Advisor to develop…]

(b) The plan shall aim … to achieve or facilitate:

(ii) clean and zero-emission vehicles for Federal, State, local, and Tribal government fleets, including vehicles of the United States Postal Service.

New federal sustainability E.O. anticipated soon...

Why Electric Vehicles?


88 mpg
vs.
31 mpg

209 gallons annually

Why Electric Vehicles?

Emissions Reduction — *Less fleet GHG emissions from use of electricity & cleaner grid*

Operating costs — *Lower fuel cost per mile and maintenance costs*

Support market development — *Lead by example in growing the electric vehicle market*

Performance & Tech — *Quiet, modern and connected*
Less vehicle downtime

Source: Department of Energy

Electric Vehicles Offerings

FY21 Light Duty Sedan EVs

8E Chevy Bolt (BEV)
259 miles
Recharge: 10 hrs L2
Price: $26,739
Incr.: $8,928

8E Nissan Leaf (BEV)
150 to 226 miles
Recharge: 7.5 hrs L2
Price: $28,602; $33,541 (with AF1)
Incr.: $11,144

8p Hyundai Ioniq (PHEV)
29/620 miles
Recharge: 2.25 hrs L2
Price: $24,997
Incr.: $7,294

9E Tesla Model 3 (BEV)
263 to 353 miles
Recharge: 8 hrs L2
Price: $43,697; $52,7871 (with IE1)
Incr.: $25,717

10E Tesla Model S (BEV)
412 miles
Recharge: 9 hrs L2
Price: $85,663
Incr.: $55,435

FY21 Light Duty SUV EVs

98E Hyundai Kona (BEV)
258 miles
Recharge: 9 hrs L2
Price: $35,593
Incr.: $15,409

91E/96E Ford Mach-E (BEV)
230-300 miles
Recharge: 14.1 hrs L2
Price: $41-$44,007
Incr.: $18,501/$19,599

96E Tesla Model Y (BEV)
326 miles
Recharge: 9 hrs L2
Price: $55,845
Incr.: $31,043

105E Tesla Model X (BEV)
360 miles
Recharge: 10 hrs L2
Price: $95,707
Incr.: $65,942

98F Hyundai Nexo (FCEV)
380 miles
Price: $44,007
Incr.: $19,559

98P Kia Niro (PHEV)
26/560 miles
Price: $28.810
Incr.: $8,625

98P Ford Escape (PHEV)
38/530 miles
Price: $28.985
Incr.: $8,800

96P Mitsubishi Outlander (PHEV)
24/320 miles
Price: $33,760
Incr.: $8,981

20P Chrysler Pacifica (PHEV)
32/520 miles
Price: $37,011
Incr.: $12,396

FY21 Medium & Heavy Truck and Bus Offerings

Class 8 Trash Truck
Global Enterprise/MOTIV
105 mile range
$937,128
GSA MAS

Class 6 Delivery Van
Global Enterprise/MOTIV
105 mile range
$407,447
GSA MAS

Class 4/6 Box Truck
Global Enterprise/MOTIV
105 mile range
$325-$393,866
GSA MAS

Class 4/6 Stake Bed Truck
Global Enterprise/MOTIV
105 mile range
$305-373,498
GSA MAS

Class 8 Stake Bed Truck
Global Enterprise/MOTIV
105 mile range
$676,468
GSA MAS

ZEUS 305 SHUTTLE BUS
Phoenix Motor Cars LLC
100 mile range
$263,733
GSA MAS

Class 6 35-40 pax Bus
Global/MOTIV Power Systems
105 mile range
$475,355
GSA MAS

35-40 Ft Catalyst E2
Proterra
250+ mile range
$660,574-771,869
GSA MAS

16-20 pax Bus
TESCO/Turtle Top Terra/MOTIV
105 mile range
$214,955-$221,988
AutoChoice

Electric Prisoner Transport Bus
Global/Capitol Coachworks/MOTIV
105 mile range
$352-$363,637
GSA MAS

Inventory & Anticipated EV Availability

Current Inventory		FY 2021		FY2022		FY2023 & FY2024	
Vehicle Type	**% of Inventory**	**BEV**	**PHEV**	**BEV**	**PHEV**	**BEV**	**PHEV**
Light-Duty Pickup	19%	4X4 Light Duty Pickup (1)				1 or More Models	
Non-Pursuit rated Law Enforcement	19%						
Medium-Duty Pickup	16%	Conversion / Large MD		Conversion / Large MD		Conversion / Large MD	
Sedan	13%	Subcompact (2)	Subcompact (1)	Compact NA / Limited	Compact NA / Limited	Compact NA / Limited	Compact NA / Limited
Sports Utility Vehicle	11%	Crossover (1)	Crossover (3)	Crossover (1)	Crossover (3)	Large SUV Limited	Large SUV Limited
Van	10%		Minivan (1)		Large Van NA / Limited	1 or More Models	Large Van NA / Limited
Heavy-Duty, Ambulance & Specialty	7%	Conversion / Small HD / Trash Truck		Conversion / Small HD / Trash Truck		Conversion / Small HD / Trash Truck	
Pursuit Law Enforcement	3%						
Bus	2%	4 Models		4+ Models		4+ Models	
Total	**100%**						

Inventory source is FY 2020 Federal Fleet Report
BEV is Battery Electric Vehicle
PHEV is Plug-in Hybrid Electric Vehicle

Model(s) Available	**Uncertain Availability**	**No Models Available**

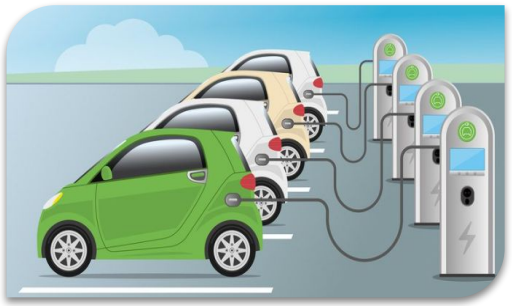
EV Suitability

EV Suitability

Mission & Need

Usage & Drive patterns

EV Model Availability



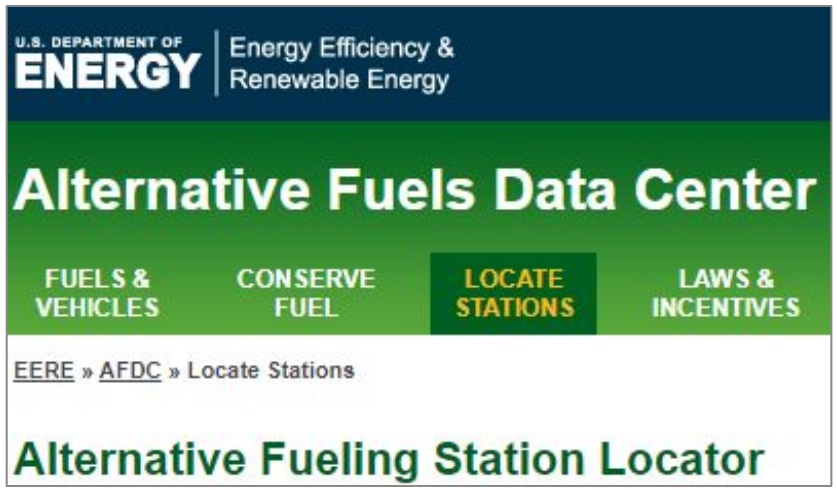
Access to or ability to install EVSE

EV Suitability Process

Identify

Match Eligible Inventory with current EV Model Availability

Compare Locations to existing AO-EVSE inventory & identify gap(s)



DOE Alternative Fueling Station Locator

Target Locations with clusters of EV-able eligible vehicles

EV Suitability Process

Assign EV Replacements to Existing Eligible Vehicles

Available Today

Like-for-Like SIN based on current BEV and PHEV models available from GSA.

SINs include 8E, 8P, 9E, 10E, 20P, 96P, 96E, 91E, 98E, 98P, 105E, 241, 242, 341, 342, Proterra Transit

Stretch SINs

Stretch into similar SINs based on current BEVs and PHEVs available from GSA Fleet:

10B/12A → 8E, 8P, 9E, 10E, 98P

21 → 20P

99 → 96P or 96E

Projected Availability

Like for EV-Like Replacements

Visit gsa.gov/afv to view the latest ZEV Fact Sheet and dimension comparisons!

Subcompact Sedan SINs 8C/8H)

Chevy Bolt 8E, Hyundai Ioniq 8P

Compact/Midsize Sedan (SINs 9C/9H/10B)

Tesla Model 3 9E, Tesla Model S 10E, Ford Escape PHEV 98P, Kona 98E

4X2 Compact SUV (SINs 98A/98)

Kia Niro PHEV 98P, Ford Escape PHEV 98P, Hyundai Kona 98E

AWD Crossover SUV (SIN 96, some SIN 99A/99 needs)

Ford Mustang Mach-E and Tesla Model Y (96E), Mitsubishi Outlander 96P

4X2 Crossover SUV (SINs 91)

Ford Mustang Mach-E, 91E

Minivan/ Larger Pass. Vans (SINs 20/20B/21)

Chrysler Pacifica, 20P

12-16 Passenger Shuttle Bus (SINs 241/2 and 341/2)

TESCO, Turtle Top Motiv 241/2 & 341/2

4X4 Intermediate SUV (SIN 105A)

Tesla Model X & more to come!

Dimension Comparisons

Find dimension comparisons at gsa.gov/afv

AWD Compact SUVs

SIN 96 GMC Terrain (GAS)

SIN 96P Mitsubishi Outlander (PHEV)

SIN 96E Mustang Mach-E (BEV)

Subcompact Sedan

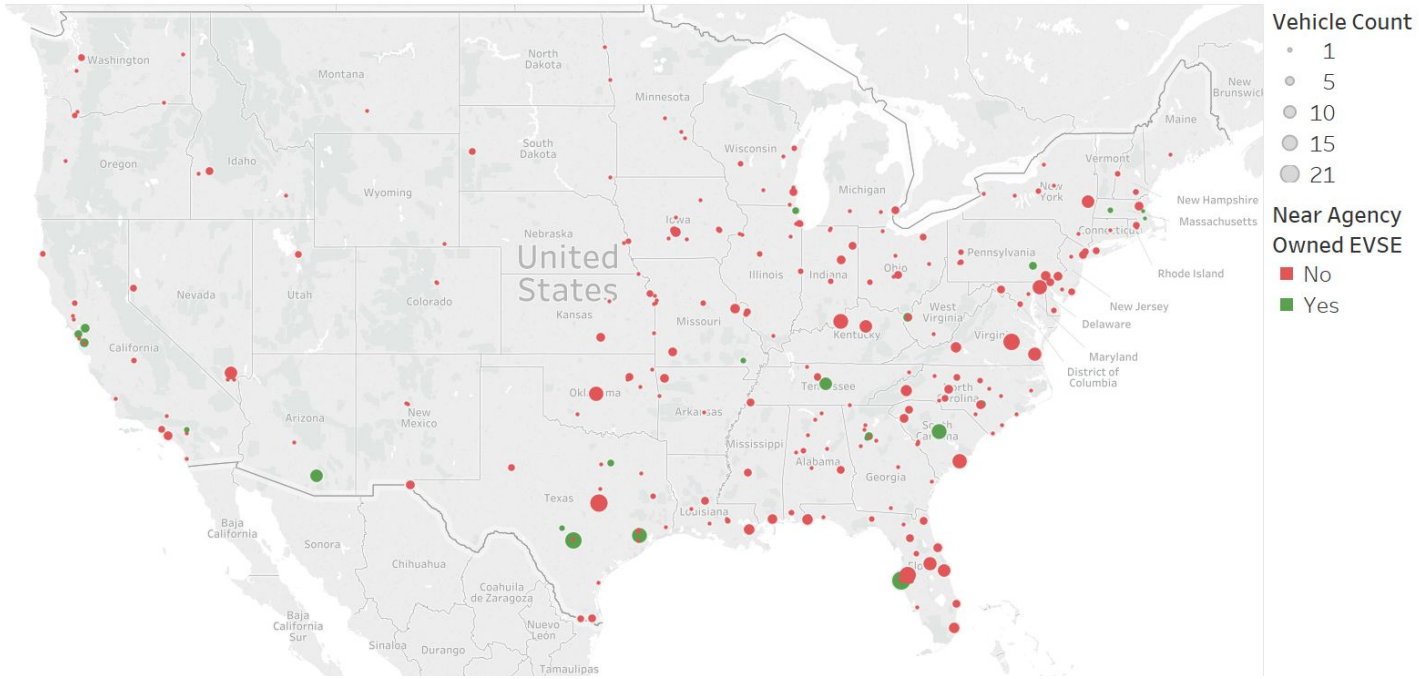
SIN 8C Hyundai Elantra (GAS)

SIN 8E Chevy Bolt (BEV)

SIN 8P Hyundai Ioniq (PHEV)

EV Suitability Process

Align Vehicles and Infrastructure

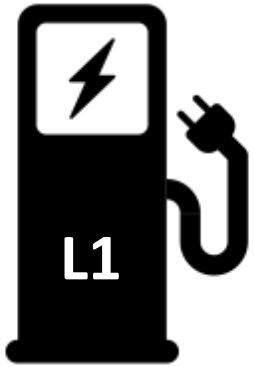


EV by Recharging Time

MY2021 Electric Vehicle	All Electric Range/Total Range	Level 1/120V Recharge Time (hours)	Level 2/240V Recharge Time (hours)	DC FAST (62.5 kW) Recharge Time (hours)
		2-5 miles of range per hour. Charging cord provided. Plug into existing outlet or station	***10-20 miles of range per hour****.2-10 hours for full charge. Stations can collect data.*	***60-80 miles of range per 30 mins****. Full charge in 30 minutes-1 hour.*
Nissan Leaf (BEV)	149	30	8	1.8
Chevy Bolt (BEV)	259	64	9	2.4*
Kia Niro (PHEV)	26/560	9	2.25	N/A
Chrysler Pacifica (PHEV)	32/520	11	2	N/A
Mitsubishi Outlander (PHEV)	*22/310*	8	*3.5*	*25 minutes*
Mustang Mach-E (BEV)	*211-300*	Up to 95 hours	*14*	*1 hour*
Hyundai Kona (BEV)	*258*	Up to 60 hours	*9*	*1 hour*
Ford Escape PHEV	38/530	10	3.5	N/A

In an 8 Hour Work Day...

*Does not include price of installation
NOTE: Each station can charge up to 2 vehicles

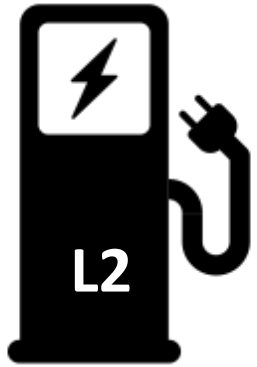


$0 - $1,500*

Outlander PHEV

OR

Kia Niro PHEV



$600-$10,000*

Chevy Bolt

OR

Pacifica PHEV

OR

Outlander PHEV

$12,000-$50,000*

Chevy Bolt

Infrastructure Considerations

Level / charging speed?

- PHEVs have small batteries; May not require Level 2 ports
- For BEVs level 2 is sufficient
- Off grid options (portable/solar?)

Ratio of Ports to Vehicles?

- Often, less than 1:1 port for BEVs (consider usage, availability of public stations)
- Vehicles do not need to charge every night

Funding EVs: EPAct Incremental Requirement

AFV
(price as awarded)

SIN 8P Hyundai Ioniq - PHEV
$23,214.85

Low-bid, Gas Fueled, Comparably-sized Vehicle

SIN 8C Hyundai Elantra - GAS
$16,309.48

Incremental Cost per Vehicle

SIN 8P Hyundai Ioniq PHEV
Incremental- $6,905.37

÷ 12 Months ÷

# of Vehicles in Agencies Leased Fleet

= Agency Per Vehicle Monthly Surcharge

Future of Telematics/Enhanced Data

Telematics

- Better informed decisions for EV planning
- Real time vehicle diagnostics
- More accurate mileage and usage data on EVs
- Effective route planning
- Energy and charge data for reporting
- Battery health monitoring
- Charging station performance
- Coming soon… EV Suitability Assessment

Infrastructure

GSA Fleet's Infrastructure Offerings

- Precompeted BPA (gsa.gov/evse)
  - Level 1, 2 & DC Fast
  - 5 manufactured products
  - Prices 30% below market price
  - Single and dual ports, wall and pedestal mounted

- Fair opportunity already given through BPA (FAR 8.405-3)
  - Select Lowest Priced model within desired CLIN and place order directly with vendor

EV Charging Station Manufacturers on Schedule

- Aerovironment (L1, L2)
- Beam/Solar (L1, L2)
- Bosch (L2)
- ChargePoint (L2, DCFC)
- Clipper Creek (L2, DCFC)
- Efacec (DCFC) BPA
- ElectricMotorWerks
- EvoCharge (L2)
- EVSE LLC (L2) BPA
- Garage Juicebar (L2) BPA
- Hubbell WD (L2)
- IDEAL Shield LLC
- Leviton (L2) BPA
- Pep Stations (L2)
- Proterra (DCFC)
- Schneider Electric (L2)
- Siemens (L2)
- Telefonix (L1) BPA

ENERGY STAR Certified

Commercial Innovations

A

B

C

D

H

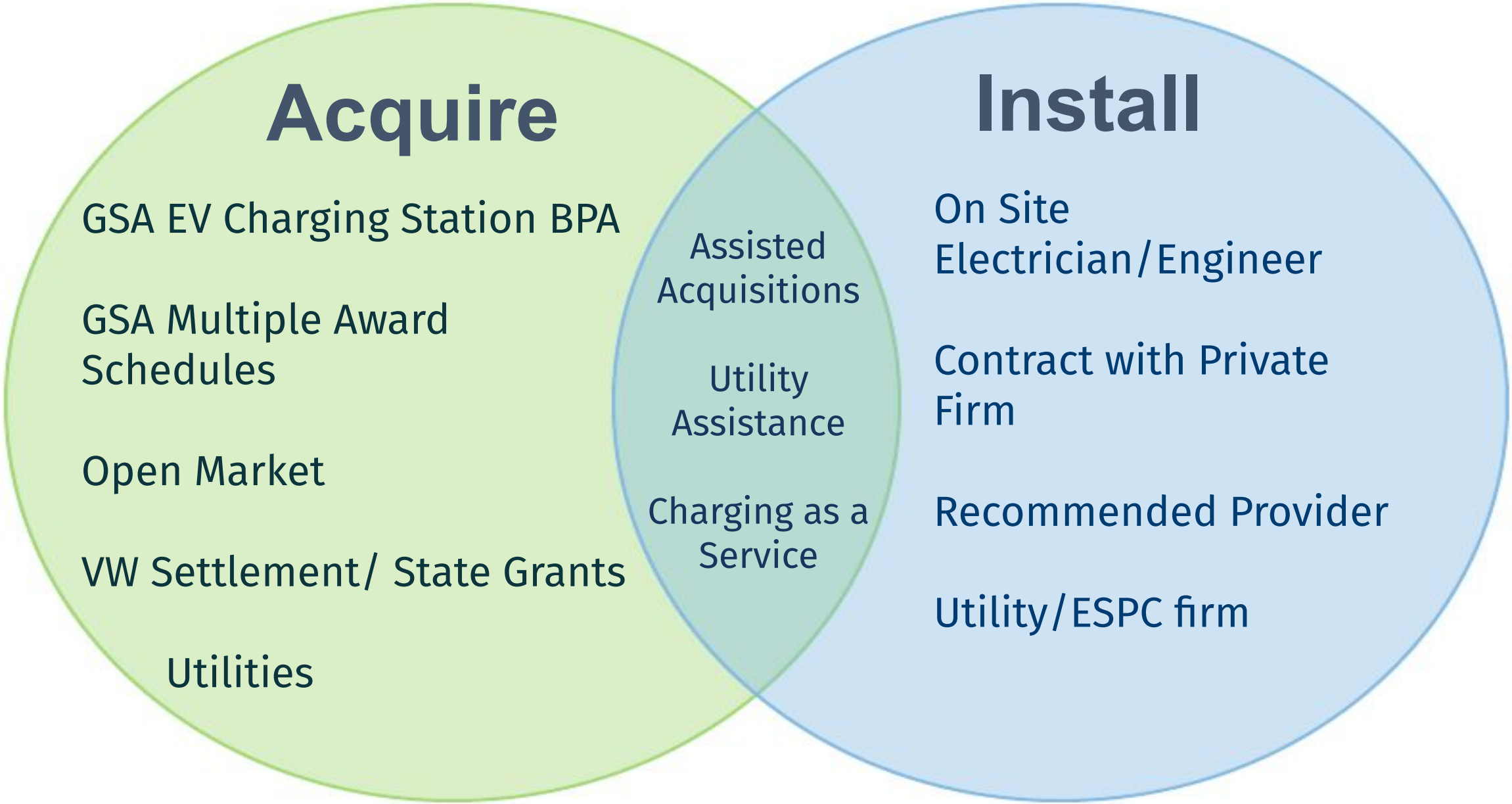
G

F

E

Electrification Planning

EV Infrastructure



Challenges to Overcome

- Upfront Costs
- Model Availability
- Coordination & Change
- Infrastructure

Fleet Electrification Partnership & Roles

GSA

- Pursing new EV offerings and Infrastructure contracting actions
- Leveraging partnership with Public Building Service
- Sharing Best Practices
- Customized data analysis for FY22 planning and beyond

Agency

- Begin budgeting, planning & engaging with agency leadership
- Develop internal policies
- Attend interagency working group meetings
- Request customized analysis
- Join GSA to electrify your fleet!

What can you do today?

Overcome Electrification Cultural Change

Preparation Matters: 71% of agencies that felt extremely prepared for their EV, report being extremely satisfied with their EV. Of those that felt unprepared to receive their EV, only 8% report being extremely satisfied. (*2018 GSA Survey to EV Drivers)*

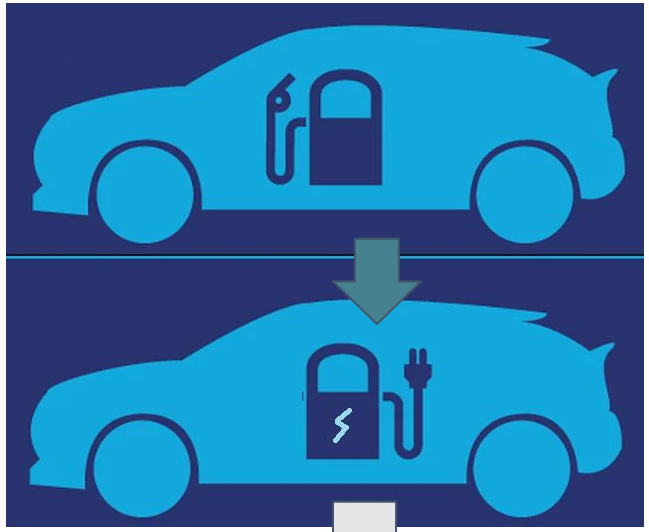
Set and communicate goals	Install proper infrastructure based on usage
Create awareness on benefits	Incorporate local input during vehicle ordering
Reward fleets for using new technology	Set challenging, achievable and engaging targets
Develop or find accurate and engaging training (DOE/GSA)	Start small, share success stories, and then grow

Implement

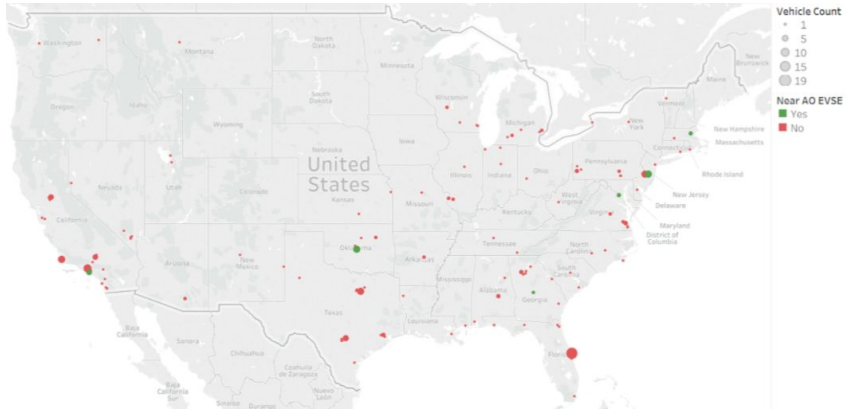
1. Ensure you have the best data
    - Update garage locations!
    - Install Telematics
2. Review information on offerings -- both EVs and EVSE - new Awards in October
    - AFV Guide
    - ZEV Fact Sheets
    - BPA & MAS offerings
3. Check GSA Fleet Drive-thru to see Eligible Replacements
4. Start Planning for Charging Infrastructure
    - GSA Building Inventory
5. Resources
    - FEMP Training
    - GSA Training / Internal Google Site / gsa.gov/afv
    - AFV Team email
6. Connect with GSA ZEV team or other customers for best practices & Post to Chatter or share at gsafleetafvteam@gsa.gov

Join us for some FY21 Early Wins!

Eligible
EV Replacement
that Meets Mission



Near Existing EVSE or
Public WEX-accepting
stations



Thank you for attending today's Desktop Workshop

For additional information on this topic contact:

GSAFleetAFVTeam@gsa.gov

gsa.gov/AFV

gsa.gov/EVSE

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- Register for future GSA Fleet Desktop Workshops - gsa.gov/gsa-fleet-training
- View pastDesktop Workshops at http:bit.ly/DtWRecordings

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